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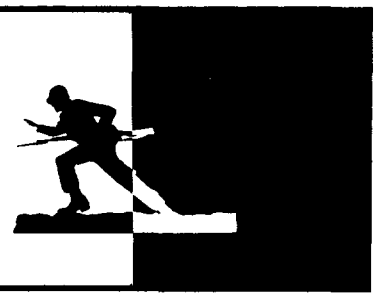

The RPG-7

On the Battlefields of Today and Tomorrow

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The RPG-7 antitank grenade launcher is one of the most common and most effective infantry weapons in contemporary conflicts. It is rugged, simple, and lethal. Whether downing U.S. Black Hawk helicopters in Somalia, blasting Russian tanks in Chechnya, or attacking government strong points in Angola, the RPG-7 is the weapon of choice for many infantrymen and guerrillas around the world. U.S. soldiers therefore need to be aware of the RPG-7 and ways in which it has been deployed in the past.

The RPG-7 is the lineal descendant of the World War II German *Panzerfaust*. It is relatively cheap, quite effective, and found everywhere. The Soviet Armed Forces adopted the RPG-7 in 1961. Today, it, and several of these countries, besides Russia, are licensed to build their own. Other manufacturers include Bulgaria, China, Iran, Iraq, Romania, and Pakistan.

The RPG-7 is a shoulder-fired, muzzle-loaded, antitank and antipersonnel grenade launcher that fires a variety of fin-stabilized, oversized grenades from a 40mm tube. The launcher with optical sight weighs 6.9 kilograms (15.2 pounds) and has a maximum effective range of 300 meters against moving point targets and 500 meters against stationary point targets. The maximum range for antitank grenades against area targets is 920 meters, at which point the round self-destructs after its 4.5-second flight. The antipersonnel grenades reach over 1,100 meters. Among the production grenades are the PG-7, PG-7M, PG-7N, and PG-7VL antitank grenades with armor penetrability of up to 600mm of rolled homogeneous steel. The PG-7VR is a tandem warhead designed to penetrate explosive reactive armor and the armor underneath. The OG-7 and OG-7M are high-explosive antipersonnel grenades.

The RPG-7 is part of the organization and equipment of the armies of more than 40 different countries

The Soviet Army assigned one RPG-7 launcher per motorized rifle squad. Forces involved in regional conflicts have tended to add more RPGs to their organizations. In the Iran-Iraq War, the Iranian 11-man squad had two RPG-7 gunners. In the Soviet-Afghan War, the *Mujahideen* guerrillas averaged one RPG for every 10 to 12 combatants in 1983-1985 and had doubled this number by 1987. The *Mujahideen* formed special armored vehicle hunter-killer teams in which 50 to 80 percent of the personnel were armed with RPG-7s, which could number up to 15. When mortars were not available, these groups also used their RPG-7s as a form of pseudo-artillery and conducted RPG preparation fires.

Constricted terrain (mountains, forest, jungle, and population centers) leads to close combat—a direct-fire brawl in which the RPG-7 excels. When the combatants are 10 to 30 meters apart, artillery and air support are practically nonexistent because of the danger of fratricide, but the RPG-7 nicely meets the combatants' requirements for antipersonnel and antiarmor fires.

Combat in the High Desert. The Soviet-Afghan War, which lasted from 1979 to 1989, pitted the local *Mujahideen* against the Soviet occupiers and the Afghan communist government. Afghanistan is a rugged land of towering mountains, vast deserts, "green zones" (fertile, agricultural regions of gardens and vineyards bisected by a network of irrigation ditches and adobe walls), and an occasional forest. Guerrilla warfare favors the use of light in-

fantry. The Soviets never fielded enough light infantry to match the quality light infantry of the *Mujahideen.* The RPG-7 was the *Mujahideen* weapon of choice, and they proved its value as a lightweight killer against Soviet tanks, armored personnel carriers, trucks, and helicopters. The Soviets tried to stay at least 300 meters away from the *Mujahideen*—close to the effective range limit of the AK-47 Kalashnikov assault rifle and out of moving target range of the RPG-7. The *Mujahideen,* on the other hand, tried to get in close and "hug" the Soviet forces to escape Soviet artillery and air strikes while using their RPGs to good effect.

Among the forces that the Soviets deployed to Afghanistan were two *Spetsnaz* (special operations) brigades (a blend of long-range reconnaissance and commando forces), which were not authorized RPG-7s. Instead, they were issued RPG-16s or RPG-22s, which lacked the range and punch of the RPG-7s. These forces therefore used captured Chinese and Pakistani RPG-7s. They preferred these weapons to the Soviet-manufactured model since they are lighter, and have a folding bipod and a convenient carrying handle.

The *Spetsnaz* found that the RPG-7 was ideal for taking out *Mujahideen* firing positions dug into mountain slopes. They would aim the weapon to hit above and behind the firing position, showering the position itself with shrapnel and rock fragments.

The *Mujahideen* used the RPG antitank grenades against both vehicles and personnel. The antitank round has a lethal bursting radius of some four meters and can kill with blast and shrapnel. The *Mujahideen* learned that the best way to destroy a vehicle was to engage it with two or three RPGs simultaneously from a range of 20 to 50 meters. This method greatly increased the chances of hitting the target and also gave the vehicle under attack less opportunity to react.

The rebels in Tadjikistan in 1992 applied this same technique when attacking T-72 tanks equipped with reactive armor. Since they lacked the anti-reactive armor PG-7VR tandem warhead, the first gunner would hit the tank to blow a hole in the reactive armor, and the second and third gunners would fire the kill shots at the exposed area. This "double-teaming" also usually took out the tank's vision blocks, so that even if the tank survived, it was blind, allowing the RPG gunners time to reposition, reload, and reengage. Another trick of the trade was to throw a fragmentation grenade on the T-72's front deck to take out the driver's vision block before the massed RPGs opened up on the tank. The optimum shot for the Tadjik rebels was against the rear section of the T-72 turret.

Since the greatest danger to the RPG gunners was from the infantry accompanying tanks, they tried to take out the tanks that were out of range of their immediate infantry support. Further, these gunners usually were accompanied by supporting snipers, along with machinegunners and an assistant RPG gunner carrying an assault rifle to protect the RPG gunner from enemy infantry. If the RPG gunners were not firing from prepared positions, it was absolutely necessary that they change firing positions after each shot. This was especially true if they failed to kill their target with the first shot or if the target had a supporting vehicle in overwatch. Any RPG gunners who were caught up in the heat of the moment and stood their ground were quickly killed.

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RPG-7s were especially valuable in executing an ambush. RPG positions were selected with particular care, then dug-in, reinforced, and camouflaged. The areas behind the firing positions were soaked with water for two to four meters in depth to prevent a tell-tale cloud of dust. The firing position was hidden in local foliage—brush, reeds, corn, and tall grasses up to two meters high. All a gunner needed was a clear view of the target and an unimpeded pathway where the grenade could fly without being deflected by twigs and foliage.

No matter how well camouflaged and watered-down a position might be, however, the launching signature of an RPG is unmistakable. The flash and the whitish blue-grey smoke are a clear give-away, and the RPG gunner who survives is the one who quickly shifts positions or dives deep into a hole.

Helicopter Hunting. While the RPG was designed to kill tanks and other combat vehicles, it has brought down a number of helicopters as well, including the two U.S. Army Black Hawk helicopters shot down during the fighting in Mogadishu, Somalia, in October 1993. In Afghanistan, the *Mujahideen* found that the best anti-helicopter tactics were ambushes. The first variant on the ambush was to identify likely landing zones and mine them. Then the *Mujahideen* would position machineguns and RPGs around the landing zone. As a helicopter landed, massed RPG and machinegun fire would tear into it. A second variant of the ambush was to position heavy machineguns in caves dug into canyon walls where they could fire horizontally across the narrow canyon. They would then bait the aircraft by positioning an attractive target on the canyon floor, where multiple machineguns would open up on its flight path.

Even if the *Mujahideen* could not lure helicopters into an ambush kill zone, the RPG could still engage helicopters. The *Mujahideen* found that a frontal shot at a range of 100 meters was the optimum against an approaching helicopter. Again, the more RPGs firing at the same time, the better the chance of a hit and escape from an avenging wingman. If the helicopter was farther away, it was better to wait until it was at 700 to 800 meters and then fire, trying to catch it with the explosion of the round's self-destruction at 920 meters. Although the chances of hitting a helicopter at this range with the self-destruct mechanism were very limited, the effort served to discourage reconnaissance helicopters and air assault landings, particularly if an SA-7 *Strela* or a Stinger shoulder-fired surface-to-air missile was also firing.

Combat in Cities. The Russian Army, in December 1994, entered the breakaway Republic of Chechnya and tried to seize the Chechen capital of Grozny from the march. After this attempt failed, the Russian Army spent two months in deliberate house-to-house fighting before finally capturing the city. During the fighting, the Russian conscript force was badly mauled by the more mature and dedicated Chechen force. During the first month of the conflict, Russian forces wrote off 225 armored vehicles as nonrepairable battle losses. This represents more than 10 percent of the armored vehicles initially committed to the campaign. The bulk of these losses were from shoulder-fired antitank weapons and antitank grenades.

Not only were the Chechen forces armed with Soviet and Russian-produced weapons, but most Chechens had also served in the Soviet Armed Forces. The Chechen lower-level combat group consisted of 15 to 20 personnel subdivided into fighting cells of three or four men. These cells had an antitank gunner (normally armed with the RPG-7 or the RPG-18 shoulder-fired antitank rocket launcher), a machinegunner, and a sniper. Additional personnel served as ammunition bearers and assistant gunners. Chechen combat groups deployed these cells as antiarmor hunter-killer teams. The machinegunner and sniper would pin down the supporting infantry while the antitank gunner engaged the armored target. The teams deployed at ground level, in second and third stories, and in the basements of buildings. Normally five or six hunter-killer teams simultaneously attacked a single armored vehicle. Kill shots were generally made against the top, rear, and sides of vehicles. Chechens also dropped bottles filled with gasoline or jellied fuel on top of vehicles. The Chechen hunter-killer teams tried to trap and destroy an entire vehicle column in a city street by destroying the first vehicle and the last.

The elevation and depression angles of the Russian tank cannon were incapable of dealing with the hunter-killer teams that fought from basements and second or third-story positions, and the simultaneous attack from five or six teams negated the effectiveness of even the tanks' machineguns. The Russians attached ZSU 23-4 and 2S6 track-mounted antiaircraft guns to armored columns to respond to these hunter-killer teams.

Staying Alive. The Soviets were not the only modern army to worry about the effectiveness of the RPG. South African and Namibian forces fighting Angolan guerrillas in Namibia during the 1980s learned to give the RPG a wide berth. Their standard drill, when traveling in an armored personnel carrier and encountering Angolan guerrillas with an RPG, was to begin driving around the guerrillas in an ever-widening circle and fire into the circle with automatic weapons. The moving vehicle was harder for the guerrilla RPG gunner to hit, and the soldiers were able to exploit their mobility and firepower. While the stationary personnel carrier provides supporting fire, stopping long enough to dismount troops to advance on guerrillas is a good way to lose the carrier.

Tanks and other ground combat vehicles need to be protected against the RPG. Sandbagging and mounting reactive armor were reasonable solutions until the introduction of the anti-reactive armor PG-7VR tandem round. Now, the best short-term solution appears to be fitting combat vehicles with a lightweight stand-off screen.

When the Soviets moved through heavy vegetation in Afghanistan, they would sometimes walk a wall of high-explosive fragmentation rounds in front of the vehicles to keep the RPG gunners at bay—or at least ruin their aim. Although this is an expensive option in terms of artillery or mortar rounds, it does work.

When practical, the best way to protect ground vehicles from the RPGs is to put infantry well forward of the vehicles to find and destroy the gunners. Combat vehicles should stay out of urban areas, or areas dominated by overwatching terrain and tall trees, until the infantry has cleared and posted the area. Moving under smoke or at night also helps protect ground vehicles. Convoys help protect ground vehicles. Convoys should have a security escort, a smoke-laying capability, and helicopter coverage. All vehicle drivers should have several smoke grenades.

The following methods will help protect helicopters from the RPG:

- Vary the take-off and landing directions from the helipads.
- Never fly a "race-track" or other identifiable pattern.
- Never follow streets, roads, canyons, or river lines for any distance.
- Always allow 500 meters between the helicopter and its wingman. This allows the wingman full range of his weaponry to engage RPG gunners.
- Vary the flight tactics and flying pattern, sometimes flying with two helicopters and sometimes with three.
- Prepare a landing zone (LZ) with an over-pressure system (fuel-air) before landing.
- Use pathfinders on any LZ before committing the full landing force.
- Never set patterns by time, formation, or sequence of events.

The RPG-7 and Future Combat. The RPG-7 will be around for a good while yet. It is a proven, inexpensive killer of technology that will continue to play a significant role—particularly when conventional units are pitted against irregular forces. Russian veterans are enthusiastic about the RPG-7; and they have suggested that the Russians need to develop antipersonnel, incendiary, smoke, and illumination rounds, along with other special-purpose rounds to give this weapon more flexibility in future combat.

Whenever U.S. soldiers are deployed to a trouble spot in the future, the RPG-7 is likely to be part of the local landscape, and we need to be ready to deal with that harsh reality.

Lester W. Grau retired from the Army as an infantry colonel and a foreign area officer specializing in the former Soviet Union. He has written widely on this area, including numerous articles and two books—*The Bear Went Over the Mountain: Soviet Combat Tactics in Afghanistan* and, with Ali A. Jalali, *The Other Side of the Mountain: Mujahideen Tactics in the Soviet-Afghan War.* He is now assigned to the Foreign Military Studies Office at Fort Leavenworth, Kansas.
